

REMARKS

The present application was filed on November 10, 1999 with claims 1-20. New claims 21-29 were added in an Amendment dated September 30, 2003.

In the outstanding Office Action, the Examiner: (i) objects to alleged informalities in the present specification; (ii) rejects claim 19 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement; (iii) rejects claims 1-13 and 15-20, 23 and 27-29 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,649,060 to Ellozy et al. (hereinafter "Ellozy") in view of U.S. Patent No. 6,166,733 to Yamada (hereinafter "Yamada"); (iv) rejects claims 8 and 9 under 35 U.S.C. §103(a) as being unpatentable over Ellozy in view Yamada in further view of U.S. Patent No. 5,794,249 to Orsolini et al, (hereinafter "Orsolini"); and (v) rejects claims 21, 22 and 24-26 under 35 U.S.C. §103(a) as being unpatentable over Ellozy in view of Yamada in further view of U.S. Patent No. 5,220,639 to Lee, (hereinafter "Lee").

Applicants point out that the present Office Action is silent as to claim 14. Thus, it is unclear whether or not the Examiner considers this claim allowable. If not allowable, Applicants would appreciate more care being taken in the specification of the grounds of rejection of the claims.

In this response, Applicants amend independent claims 1, 19 and 20 to further clarify the subject matter of the invention, and traverse the various rejections.

Applicants incorporate by reference herein the remarks from their previous responses dated September 30, 2003, March 31, 2004 and November 4, 2004 (hereinafter "previous responses").

Regarding the objection to the present specification, Applicants appreciate the Examiner pointing out the two minor typographical errors, which have now been corrected.

Regarding the §112, first paragraph, rejection of claim 19, while Applicants contend that such claim (prior to the present amendment) did not fail to meet the enablement requirement based on the assertion that it constituted a single means claim, Applicants have nonetheless amended the claim to clarify the subject matter, i.e., that the apparatus comprises a memory and a processor. Withdrawal of the §112 rejection is therefore respectfully requested.

Regarding the rejection of independent claims 1, 19 and 20 under 35 U.S.C. §103(a) based on Ellozy and Yamada, Applicants respectfully assert that the combination of Ellozy and Yamada fails to teach or suggest all of the limitations in said claims, for at least the reasons presented below.

Nonetheless, Applicants have amended the independent claims in a sincere effort to expedite the present application through to issuance. More particularly, Applicants have amended claims 1, 19 and 20 to recite that “at least one segment of the stored audio-based data is retrievable by obtaining a location indicative of where the at least one segment is stored from a direct correspondence between at least one of the indexed semantic units and the at least one segment.” Support for this amendment may be found throughout the present specification, by way of example only, see page 7, line 17, through page 8, line 16.

Applicants have previously set out the deficiencies in Ellozy in their previous responses. The Examiner has acknowledged such deficiencies and combined Ellozy with the Yamada reference. However, Applicants assert that Yamada still fails to remedy the deficiencies of Ellozy.

The present invention, for example, as recited in amended independent claim 1, is directed toward a method of processing audio-based data associated with a particular language. The method comprises the steps of: (i) storing the audio-based data; (ii) generating a textual representation of the audio-based data, the textual representation being in the form of one or more semantic units corresponding to the audio-based data, wherein a semantic unit comprises a minimal unit of language having a semantic meaning; and (iii) indexing the one or more semantic units and storing the one or more indexed semantic units for use in searching the stored audio-based data in response to a user query, wherein at least one segment of the stored audio-based data is retrievable by obtaining a location indicative of where the at least one segment is stored from a direct correspondence between at least one of the indexed semantic units and the at least one segment. Amended claims 19 and 20 recite similar features.

Again, as pointed out in Applicants’ background section (e.g., pages 1 and 2 of the present specification), Ellozy is a word-based indexing system and in such word-based indexing systems, before the searching can be started, a vocabulary and a language model based on known words must be prepared. Thus, by definition, there are always words that are unknown to the system. Unfortunately, the searching mechanism can only work with words resulting in a good language model score, i.e., known words. Also, for most of the Asian languages, including, e.g., Chinese, Japanese, Korean, Thai, and Vietnamese, word boundaries neither exist in printed form, nor in computer text files. Thus, word-based indexing and searching methods can not be applied to these

languages. Thus, the invention proposes an indexing and searching approach that is not word-based but rather is semantic unit-based, as is recited in the claims.

As stated in the present specification at page 2, lines 15-21, semantic units are defined as small, preferably the smallest, units of a language that are known to have semantic meaning. Examples of semantic units that may be used are syllables or morphemes. Independent claims 1, 19 and 20 were previously amended to expressly recite that a semantic unit comprises a minimal unit of language having a semantic meaning in a sincere effort to further distinguish the semantic unit-based techniques of the claimed invention from the word-based techniques of Ellozy.

Ellozy does not disclose indexing or searching based on semantic units, wherein a semantic unit comprises a minimal unit of language having a semantic meaning, as expressly recited in the claimed invention. Indexing and searching in Ellozy is clearly based on words only, e.g., see steps 740 and 750 of FIG. 7 (“storing index words,” “comparing index and recognized words”). This is also made abundantly clear at column 7, lines 13-20 (“indexing is done . . . by choosing key words or phrases”).

At pages 5-6 of the present Office Action, the Examiner acknowledges that Ellozy “does not explicitly teach wherein a semantic unit comprises a minimal unit of language having a semantic meaning.” However, the Office Action goes on to state that “this is a well known feature in the art as evidenced by Yamada who teaches at col. 4, lines 45 to col. 5, lines 9, indexing a Chinese/Japanese index based on syllable.”

However, while Yamada mentions syllables, Yamada is still a word-based index and search system. As col. 4, lines 4-9 explain, a syllable in Yamada is used merely for sorting keywords. That is, the keywords that are used to actually search a database are sorted and displayed based on syllables. Thus, once the keywords are sorted and displayed based on syllables (or numbers), a user is able to more efficiently select the keyword for a record search. Then, as explained at col. 6, lines 12-19, a record is retrieved from a database corresponding to the selected keyword.

Thus, even if combined with Ellozy, the combination of Yamada and Ellozy still fails to teach or suggest all of the limitations in independent claims 1, 19 and 20. That is, the combination fails to teach or suggest “generating a textual representation of the audio-based data, the textual representation being in the form of one or more semantic units corresponding to the audio-based

data, wherein a semantic unit comprises a minimal unit of language having a semantic meaning, and indexing the one or more semantic units and storing the one or more indexed semantic units for use in searching the stored audio-based data in response to a user query, wherein at least one segment of the stored audio-based data is retrievable by obtaining a location indicative of where the at least one segment is stored from a direct correspondence between at least one of the indexed semantic units and the at least one segment” (underlining added for emphasis).

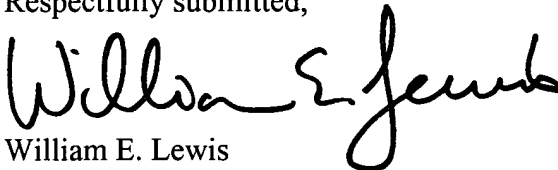
That is, while the claimed invention indexes the one or more semantic units and stores the one or more indexed semantic units for use in searching the stored audio-based data in response to a user query and wherein at least one segment of the stored audio-based data is retrievable by obtaining a location indicative of where the at least one segment is stored from a direct correspondence between at least one of the indexed semantic units and the at least one segment, even if Yamada were combined with Ellozy, syllables are not indexed and stored for use in searching a database in response to a user query wherein at least one segment of the stored audio-based data is retrievable by obtaining a location indicative of where the at least one segment is stored from a direct correspondence between at least one of the indexed semantic units and the at least one segment. The syllables from Yamada are used merely to sort keywords such that a keyword can be more efficiently selected and used to search a database. Thus, unlike the claimed invention, there is no direct correspondence between any syllables in Yamada and any stored audio segments that is used to obtain a location indicative of where the at least one segment is stored so that the segment may be retrieved.

In fact, the Office Action at page 6 appears to acknowledge that Yamada would merely “facilitate sorting” of keywords in a word-based system that includes the teachings of Ellozy.

For at least the above reasons, Applicants respectfully assert that independent claims 1, 19 and 20 are patentable over the combination of Ellozy and Yamada. Also, not only due to their dependence on claim 1, but also because such claims recite patentable subject matter in their own right, Applicants respectfully assert that dependent claims 2-14, 15-18 and 21-29 are patentable over any combination including Ellozy and Yamada. Neither Orsolini nor Lee remedy the deficiencies of Ellozy and Yamada. Withdrawal of the various §103(a) rejections is therefore respectfully requested.

In view of the above, Applicants believe that claims 1-29 are in condition for allowance, and respectfully request favorable reconsideration.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "William E. Lewis". The signature is fluid and cursive, with the first name "William" being the most prominent part.

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